

**CHOICE OF ALTERNATIVE DISPUTE RESOLUTIONS  
IN CONSTRUCTION DISPUTES**

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This project report is dedicated to my dearest husband for his endless support and encouragement, and for my little baby girl for her patient and time that I have owed.

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## ABSTRACT

The adversarial natures of Construction Industry contribute construction disputes. This research aim to study Alternative Dispute Resolutions (ADRs) process and to propose the preferred ADRs that can minimise the time, cost and to preserve reputation and to propose enhancement criteria in current ADRs. Literature review was carried out and questionnaire was formulated and distributed to project participants in Johor Bahru. The data collected was analysed using Relative Important Index (RII). The analysis proved that from the null hypotheses variables tested, Negotiation matched 69% of the preferred resolution in the industry with some enhancement needed on this technique. The relationship and reputations rank the highest preference criteria with cost and duration fall on rank 10 and 11 respectively. Negotiation remains the most significant resolution method of construction disputes.

## **ABSTRAK**

Faktor permusuhan semula jadi di dalam Industri Pembinaan menyumbang kepada pertikaian. Kajian ini bertujuan untuk mengkaji proses Alternatif Penyelesaian Pertikaian (ADRs) dan mencadangkan pilihan ADRs yang sesuai yang dapat menurangkan masa, kos disamping memelihara reputasi serta mencadangkan kriteria penambahbaikan di dalam ADRs yang sedia ada. Kajian literatur telah dijalankan dan borang soal selidik telah diformulasikan serta diedarkan kepada responded yang berkaitan di Johor Bahru. Data yang dikumpul telah dianalisa menggunakan Relatif Indeks Penting (RII). Analisis membuktikan bahawa daripada hipotesis nol pembolehubah yang diuji, Rundingan menepati 69% daripada kaedah yang digemari di dalam industri ini, dengan sedikit penambahbaikan diperlukan. Hubungan dan reputasi mendapat kedudukan tertinggi bagi kriteria yang digemari, sementara kos dan masa jatuh pada kedudukan 10 dan 11. Rundingan kekal sebagai kaedah penyelesaian terpenting bagi pertikaian dalam pembinaan.

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**LIST OF SYMBOLS**

$\alpha$	Cronbach's Alpha
A	Highest weight
$\sigma^2x$	Variance total test score
$\sigma^2y_i$	Variance component $i$
$i$	Item / person
$n$	Number of response frequency for preferred criteria
$N$	total number of respondents.
$P_i$	Proportion scoring 1
$p'$	Point estimate/ mean
$z$	is standard normal distribution
$w$	weighting given to each factor by the respondents

**LIST OF ABBREVIATIONS**

ADRs	Alternative Dispute Resolutions
ASCE	American Society of Civil Engineers
CI	Confidence Interval
CIDB	Construction Industry Development Board
DOS	Department of Statistic, Malaysia
GDP	Growth Domestic Product
IEM	Institution of Engineers, Malaysia
PAM	Persatuan Arkitek Malaysia
PWD	Public Work Department
RII	Relative Importance Index
SD	Standard Deviation

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 General Background**

A search of “Disputes Resolutions” in American Society of Civil Engineers (ASCE) library, showing results of 1719 journals, while term “Disputes” itself were listed in 5288 journals back to 1987 to current year. Looking at this huge numbers, one may ask, do we need another journal related to disputes topic? The answer is yes! Solving disputes issue will never stop. There must be new enhancement of available disputes resolutions options. Focusing on Malaysia alone, only 81 journals were published back to 1994. This shows that the awareness on this issue is still young in Malaysia even though Malaysia’s construction industry has rapidly growing immediately after independence period, 1957 (Phase 1) towards year 2020 (Phase 3) as reported by Mohd Hanizun, (2012), for more than 50 years at current. The construction industry plays a vital role in any country’s economic development. Referring to (DOS, 2014), Malaysian construction industry manages to contribute 3.5% of total 100% Growth Domestic Product (GDP) in 2012, meanwhile GDP Fourth Quarter (Q4) 2013, the construction sector showing slower production growth of 9.7%, a decline from a year ago (Q4 2012: 17.6%), supported by activity in the non-residential and residential sub-sectors. Fortunately, this is not due to dispute issue, unless cause by the global economic crisis, although disputes can cause delay and abandonment of constructions activities. Along with the growth of construction

industry in Malaysia, the disputes resolution awareness is continuously improving, despite from the well-known traditional approach litigation, everyone is looking forward to alternative dispute resolutions (ADRs) methods.

## **1.2 Problem Statement**

Any kinds of jobs in this world, if not being properly manage will end up in disputes. Disputes will impact the three main pillars of any projects that are the time, cost and quality. There are many other consequences when a dispute occurs, the most awkward moments is when the disputes party has to sacrifice the business relationship and reputations. Reputations are not easy to build compare to building a structure. It is more like building an empire that holding the dignity and pride of a company and will give impact in future especially when selecting of contractors for a tender award, reputations are one of the main considerations criteria. Everyone in this industry is aware that constructions industry is very competitive, due to the fragmented condition and limited resources. Construction projects often involve parties that may enter into multiple contracts over a period of several years (Patricia, 2013). Tarnished reputation will reduce the opportunity for a party to be selected for a contract award.

Concern with this situation, many previous studies conducted to determine and recommend the best options to solve a dispute. In constructions industry, the contract documents are vital, despite showing the guideline of works procedures, cost, quantity, materials and design used; it is also one of the main sources of disputes in construction industry (Cheong, 2011). Worst situations, when part of the contractual agreement already selected disputes resolution methods to be used for examples in Public Work Department (PWD) 203 (Rev. 2007) contract, under Clause 65.0 it is clearly stipulated the methods to be selected in case of any disputes arise which is the Arbitration.



Meanwhile The Malaysian Architect Association (PAM) standard forms of building contract are the most widely used in the Malaysian private sector construction industry; with an estimate of 90% of building contracts in the private sector based on a PAM form (Sundra, 2009 & 2010; Zarabizan et al., 2013; Sim, 2013) has made Adjudication as mandatory for dispute resolution (Mohd Suhaimi et al., 2012).

Contrary to CIDB Form of Contract for Building Works 2000 (CIDB, 2000), which prefer mediation as a first solution option before proceeding to other ADRs (Sim, 2013). There are a few more types of contract documents such as Standard Form of Civil Engineering Contract by Institute of Engineers Malaysia, Standard Form of Building Contract by Institute of Surveyors Malaysia, Standard Form of Building Contract by Institute of Surveyors Malaysia and etc. This study is not intended to highlight the provision on each type of contract but enough to highlight on the lack of ADRs practice in Malaysia construction industry.

Selection of an appropriate dispute resolution method is vital as every construction project is bound to have disagreements (Cheong, 2011). However, the actual experience of ADRs is very low in the Malaysian construction industry based on the studies by Zulhabri et al. (2008) and Cheong (2011). Many researches have been conducted; most of them are focusing on time and cost impact because these two factors always been associated to any business. The impact on reputations and relationships need to be highlighted as well because business cannot stand alone in order to success. Thus, which one of the available disputes resolutions can consider those impact factors altogether? Therefore, this study aims to review the ADRs process and the selecting factors to propose the preferred ADR that can minimize the impact of cost, time and reputation, and will propose enhancement criteria in current dispute resolution.

### **1.3 Aim**

The aim of this study is to review Alternative Disputes Resolutions (ADRs) process in order to propose the preferred ADR in term of cost, time and reputation from key players of construction industry in Johor, Malaysia.

### **1.4 Objectives**

In order to achieve the above aims, following objectives have been laid out:

1. To study ADRs process and procedures.
2. To study factors affecting the choice of ADRs.
3. To propose the preferred ADR
4. To propose enhancement criteria in local construction industry.

### **1.5 Scope of Work**

First of all, this study will inspect all elements of construction disputes in general, starting from the cause and source of disputes, and factor affecting the choice of ADRs based on the preference of the key players of this industry, that are the contractor (class A or G7), clients, consultants and others, focusing in Johor Bahru district. Secondly, with respect to the very vast subject regarding ADRs in construction industry, therefore, this particular work will only focus on several types of ADRs that are commonly popular within the local and international contract form.

Subsequently, the consequences (advantages and disadvantages) arising from these ADRs option will also be addressed. Next, the study will also put forward the enhancement criteria in dispute resolution using ADRs, based on established ideas from various references, journal, articles, Malaysian and International Bar, working papers, bulletins and newspapers. Finally it is hope that, the preferred ADRs in Malaysian construction industry can be proposed based on the local stakeholders preference.

## **1.6 Significant of Work**

ADRs are an important subject that stakeholders within construction industry needs to be aware of, and understands as clear as possible. Thus, this study is presumed to bear the significance of compiling the relevant knowledge regarding the various types of ADRs available, whereas the final product (the completed work as a literature) may be used as a source of reference for all who are involved in construction industry or the construction processes to enhance their knowledge on the matter of ADRs together with enhancement criteria and shall influence them in selecting the best option for their contractual agreements. This would subsequently assists everyone involved, starting from the highest level of management to the lowest level of construction project stakeholders towards a more organized planning, implementation and decision-making, by taking into account the root causes of disputes, and factors affecting the choices of each ADR.

## 1.7 Research Methodology

The research methodology is a guideline to the research to be completed in a systematic way to achieve the research objectives. In this study, the research process generally consisted of five stages. The first stage involves identifying research problem which covered the significance, objective and scope of study by referring to articles, cases and discussion with supervisor.

Second stage is followed by exploratory research of the literature. This is the primary means of gathering information and data for the report from local contractual form of contracts, books on dispute resolution, articles from legal and construction trade journals, and various web sites, references books, newspaper articles and relevant magazines. Analysis and critical review from these sources will provide sufficient data that can be used to determine the background, and primary data of the research.

The third stage is collecting secondary data. Secondary data gathered for this study is collected by questionnaires distributed among the correspondents whose are the main stakeholders in construction industry in Johor Bahru.

The fourth stage is data analysis, interpretation and data arrangement. This stage is basically to process and convert the data collected into information that is useful for the research. This study will utilise statistical analysis in order to show relationship between the ADRs option and stakeholders' preference.

The last stage of the research process mainly involved writing up discussion and recommendations for future research. The **Figure 1.1** summarized the methodology flowchart for this research.



## REFERENCES

- Adam T. (2013). *Arbitration Still Best Road to Binding Dispute Resolution*. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction. Vol.5, Page 90-96.
- Alexander Mass (2004). *Three Essays on the Relationship between Labour Disputes and Employee Performance*. Dissertation Summary, Princeton University
- Carlos, J. (2012). *Tornado Charts in Excel 2007/2010 Update. Management Consulting Solution for Decision Maker*. Retrieved from <http://8020world.com/2009/05/tornado-charts-in-excel-2007-update/>
- Chau, K. W. (2007). *Insight into Resolving Construction Disputes by Mediation/Adjudication in Hong Kong*. Journal of Professional Issues in Engineering Education and Practice. Vol. 133, Page 143 – 147.
- Chong Heap Yeah (2011). *E-Dispute Resolution Model on Contractual Variations*. PhD Thesis for Universiti Teknologi Malaysia. Faculty of Civil Engineering.
- Chotchai C. and Wijittra M. (2013). *Collaborative Negotiation Behaviours in Thai Construction Projects*. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction. Vol. 3, Page 109 - 115.
- CI Arb (2011). *Resolving a dispute- Resolving a Civil or Commercial Dispute*. Chartered Institute of Arbitrator. Retrieved from <http://www.ciarb.org/dispute-resolution/resolving-a-dispute/>

- CIOB (2014). *Construction Disputes*. The Chartered Institute of Building. Designing Building Wiki. Retrieved from [http://www.designingbuildings.co.uk/wiki/Construction\\_disputes](http://www.designingbuildings.co.uk/wiki/Construction_disputes)
- Colins and Slagle (2014). *The Litigation Process*. Retrieved from <http://www.collins-slagle.com/faqs.html>
- Cronbach, L. J. (1951). *Coefficient Alpha and the Internal Structure of Tests*. *Psychometrika* 16 (3): 297–334.
- Cronbach, L. J. (1970). *Essentials of Psychological Testing*. Harper & Row. page 161.
- Daniel, D. M. (2011). *Dispute Review Boards What the Case Law Says About Them*. Construction. American Arbitration Association. Retrieved from [https://www.adr.org/aaa/ShowPDF?doc=ADRSTG\\_011803](https://www.adr.org/aaa/ShowPDF?doc=ADRSTG_011803)
- DEHLG (2008). *A Guidance Document, Dispute Resolution Procedures & Risk Assessment in Public Sector Construction Contracts*. Department of Environment, Heritage and Local Government of Ireland. Retrieved from <http://constructionprocurement.gov.ie/>
- Develles, R. F. (1991). *Scale Development*. Sage Publications. pp. 24–33.
- DOS (2014). *Gross Domestic Product Fourth Quarter 2013*. National Account Gross Domestic Product. Government of Malaysia. Department of Statistic Malaysia. Retrieved from [http://www.statistics.gov.my/portal/download\\_Akaun/files/quartely\\_national/2013/SUKU\\_KEEMPAT/SUKU\\_KEEMPATKDNK\\_Q413.pdf](http://www.statistics.gov.my/portal/download_Akaun/files/quartely_national/2013/SUKU_KEEMPAT/SUKU_KEEMPATKDNK_Q413.pdf)
- Duzgun A. and Ralph D. (2013). *Analysis of Construction Dispute Review Boards*. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*. (2014) Vol. 5, Page 122-127.
- Edwin H. W. C. and Henry C. H. S. (2005). *Disputes and Dispute Resolution Systems in Sino-Foreign Joint Venture Construction Projects in China*. *Journal of Professional Issues in Engineering Education and Practice*. ASCE Vol. 131, page 141 – 148.

- EHLG (2008). *Dispute Resolution Procedures & Risk Assessment in Public Sector Construction Contracts*. A Guidance Document. Construction Procurement Reform, Ireland. Retrieved from <http://constructionprocurement.gov.ie/>
- El-Adaway, I. H. & Ezeldin, A. S. (2007). *Dispute review boards: Expected application on Egyptian large-scale construction projects*. Journal of Professional Issues in Engineering Education and Practice. Vol. 133(4), Page 365-372.
- Elijah, E. (2013), *Disputes Resolution Method*. Speaker notes from CEO of Rubiini UAE, retrieved from <http://www.slideshare.net/ezendu/dispute-resolution-methods>.
- Farrukh, A. and Ayman A. M. (2014). *Concurrent Delays in Construction: International Legal Perspective*. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction. ASCE Vol.6, page 1-8.
- Gebken, R. J., and Gibson, G. E. (2006). *Quantification of Costs for Dispute Resolution Procedures in the Construction Industry*. Journal of Professional Issues on Engineering Educations Practice. Vol.132(3), Page 264–271.
- George, D., & Mallery, P. (2003). *SPSS for Windows Step by Step: A Simple Guide and Reference*. 11.0 update (4th ed.)
- Ghada M. G., Satyanarayana N.K, Jeniffer s. and Kelly S. (2011). *Analytical Framework for the Choice of Dispute Resolution Methods in International Construction Project Based on Risk Factors*. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction. ASCE Vol.3, page 79-85.
- Gregory S. M. and Allen J. T. (2011). *Effective Management of Construction Dispute Resolution*. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction. (2014) Page 1-9.
- HKCIC (2005). *Practice Notes for Construction Managers*. PNCM 6: Mediation - First Issue, March 2005.



- H. M. Al-Humaidi (2013). *Arbitration in Kuwait: Study of Current Practices and Suggestions for Improvements*. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction. (2014) Page 1-9.
- H. M. Musonda, and M. Muya (2011). *Construction Dispute Management and Resolution in Zambia*. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction. Page 160-169.
- Jay Kolls (2013). *Labor Dispute Could Delay Minn. Construction Projects*, Eye Witness ABC News. Retrieved from <http://kstp.com/article/stories/s3172165.shtml>
- John D. C., Paul J. G., Douglas F. C. (2001). *Chapter 2: Contemplating Litigations and Its Alternative, Construction Disputes: Representing the Contractor*. Page 21-22 Aspen Publisher, New York.
- Kathleen M. J. H. (2003). *Resolution of Construction Disputes: A Review of Current Methodologies*. Journals of Leadership and Management in Engineering. Vol.3, page 187-201.
- Kathleen M. J. H. (2011). *To Be or Not to Be—That Is the Question: Is a DRB Right for Your Project?* Journal of Legal Affairs and Dispute Resolution in Engineering and Construction. (2014) Vol. 3, Page 10-16.
- Kelleher, T. J., and Walters, G. S. (2009). *Smith, Currie and Hancock's Common Sense Construction Law: A Practical Guide for the Construction Professional*. 4th Ed., Wiley, Hoboken, NJ.
- Kurt d. and Dick B. (2012) *Alignment Partnering: A Bridge to ADR Processes?* Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, page 60-66.
- Layng Ross. (2009). *Construction Disputes Resolution*. Disputes resolution methods. <http://www.layngross.com>
- Matthew P. T. (2005). *An Overview of Alternate Dispute Resolution Use in the Construction Industry*. Master Thesis of Science Engineering for the University of Texas at Austin.

- Michael Dawson (2011). *Adjudication versus Mediation*. Magazine of the Chartered Institute of Building. Construction Manager News. CIOB. Retrieved from <http://www.construction-manager.co.uk/news/adjudication-versus-mediation/>
- Mohd Hanizun, H. (2012). *An Overview of Malaysian Construction Industry*. Technical Talk. Construction Management Programme School of Housing, Building and Planning, Universiti Sains Malaysia. Retrieved from <http://www.hbp.usm.my/rus1042012/talk8drhanizun.pps>.
- Mohd Suhaimi, M. D., Zahira, M. I., Nur, E. M. and Mohd Salleh, J. (2012). A *Revisit on the Current Practice of Dispute Resolution and ADR in the Malaysian Construction Industry*. Journal of Design and Built Environment, Vol.10, June 2012.
- Murali, S. and Yau, W. S. (2006). *Causes and Effects of Delays in Malaysian Construction Industry*. International Journal of Project Management. Vol. 25, Page 517–526.
- Nicholas Gould (2012). *Adjudication in Malaysia*. Adjudication Society. Retrieved from <http://www.adjudication.org/adjudication-malaysia>
- Noraziah W. (2008). *Minimizing Construction Disputes*. Master Project of Construction Management for Universiti Teknologi Malaysia.
- Oxford Dictionaries (2014). *Definition of Disputes*. Retrieved from <http://www.oxforddictionaries.com/definition/english/dispute>
- Patricia D. G. (2013). *Engineering a Successful Negotiation*. Journal of Legal Affairs and Dispute Resolution in Engineering Construction, ASCE Vo. 5. Page 6 – 12.
- Philip, S. L. and El-Hadaway, I. H. (2014). *Project Benchmarking: Tool for Mitigating Conflicts, Claims, and Disputes through Improved Performance*. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction. Vol. 6, Page1 – 7.

- PWD 203 (Rev. 2007). *Standard Form of Contract to Be Used Where Drawings and Specifications Form Part of The Contract*. Government of Malaysia.
- Sai O. C. and Karen H. Y. P. (2013). *Anatomy of Construction Disputes*. Journal of Construction Engineering and Management, ASCE Vol. 139. Page 15 – 23.
- Sai O. C., Pui T. C. and Tak W. Y. (2009). *Contingent Use of Negotiators' Tactics in Construction Dispute Negotiation*. Journal of Construction Engineering and Management. Vol. 135, page 466–476.
- Saied Y., Keith W. H. and Tarek H. (2010). *Attitude-Based Negotiation Methodology for the Management of Construction Disputes*. Journal of Management in Engineering. ASCE Vol. 26 Page 114 – 122.
- Saied Y., Keith W. H. and Tarek H. (2010). *Considering Attitudes in Strategic Negotiation over Brownfield Disputes*. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction. (2014) Vol. 2, Page 240 – 247.
- Salwa A. F. and Islam H. E. (2012). *Contract Administration Guidelines for Managing Conflicts, Claims, and Disputes under World Bank–Funded Projects*. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction. Vol. 4, Page 101 – 110.
- Sandu (2007). *Construction Disputes*. American Bar Association. Retrieved from <http://www.americanbar.org/content/dam/aba/migrated/dispute/essay/constructiondisputes.authcheckdam.pdf>
- Sim Nee Ting (2013). *Construction Procurement Framework Incorporating Form Enhancement Modules for the Selection of Standard Form of Contract in Malaysia*. PhD Thesis for Curtin University. School of Engineering and Science. Retrieved from [http://espace.library.curtin.edu.au/R?func=dbin-jump-full&local\\_base=gen01-era02&object\\_id=194387](http://espace.library.curtin.edu.au/R?func=dbin-jump-full&local_base=gen01-era02&object_id=194387)
- SPD (2003). *Alternative Dispute Resolution Guidance*. Scottish Procurement Directorate, Scottish Executive. Retrieved from <http://www.scotland.gov.uk/Resource/Doc/1265/0085404.doc>

- Staugas, J (2002). *Strategies for Dispute Prevention and Management in Commercial Arrangements*. ADR Bulletin: Vol. 4: No. 9, Article 5. Retrieved from <http://epublications.bond.edu.au/adr/vol4/iss9/5>
- Sundra Rajoo (1999). *The Malaysian Standard Form of Building Contract (The PAM 1998 Form)*. Malayan Law Journal, 2nd Edition, page 40.
- Sundra Rajoo (2010). *The PAM 2006 Standard Form of Building Contract - A Change in Risk Allocation*. Malayan Law Journal, page . Cxlvii.
- Sundra Rajoo (2011). *Dispute Resolution for Construction Industry in Malaysia*. KLRC Training Course Notes. Retrieved from <http://www.ipba2012.org/images/Presentations/1st%20March-Presentation/Dispute%20Resolution%20in%20Mega%20Construction%20Contracts/Sundra%20Rajoo.pdf>
- Tan W. Y. and Sai O. C. (2011). *Behavioral Studies of Project Dispute Negotiation in Engineering and Construction: Visit to Bandura's Self-Efficacy Theory*. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction. (2014) Vol. 3, Page 97-100.
- Thomas Telford Training (2014) *Construction Disputes Masterclass - The Cause, Effect And Solution*. Retrieved from <http://www.tttrain.co.uk/courses/CourseDetails.aspx?ProductCode=L1007>
- Trantina, T. L. (2001). *An attorney's Guide to Alternative Dispute Resolution (ADR): ADR 1.01*. Presented at the New Jersey Bar Association, Justice Marie L. Garibaldi America Inn of Court for Alternative Dispute Resolution, Bedminster, N.J.
- USDT (2009). *Dispute Review Boards: Resolving Construction Conflicts*. Federal Highway Administration. Department of Transportation, US. Retrieved from <https://www.fhwa.dot.gov/construction/fs02009.cfm>
- Yates, J. K. and Juan, D. (2006). *Utilizing Dispute Review Boards in Relational Contracting: A Case Study*. Journal of Professional Issues in Engineering Education and Practice. Vol. 132, Page 334-341.

- Yates, J. K. (2011). *Engineering and Construction Law and Contract*. Prentice Hall, NJ.
- Yiu, T. W., and Lai, W. Y. (2009). *Efficacy of Trust-Building Tactics in Construction Mediation*. *Journal of Construction Engineering and Management*. Vol. 135(8), page 683–689.
- William R. W. and Laura J. S. (2013). *Class Arbitration and the Construction Dispute: Analysis of Current Jurisprudence and Practical Tips for the Construction Practitioner*. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*. Vol. 5, Page 67-79.
- Zarabizan, Z., Syuhaida, I. and Aminah, M. Y. (2013). *An Overview of Comparison between Constructions Contracts in Malaysia: The Roles and Responsibilities of Contract Administrator in Achieving Final Account Closing Success*. *Proceedings of the 2013 International Conference on Education and Educational Technologies*. Page 34- 41.